ENVIRONMENTAL SERVICES
SPB05-894P-HH

1. PARTIES

THIS CONTRACT, is entered into by and between the State of Montana, Department of Administration, State Procurement Bureau, (hereinafter referred to as "the State"), whose address and phone number are Room 165 Mitchell Building, 125 North Roberts, PO Box 200135, Helena MT 59620-0135, (406) 444-2575 and **Brown and Caldwell**, (hereinafter referred to as the "Contractor"), whose nine digit Federal ID Number, address and phone number are 94-1446346, 1697 Cole Blvd Suite 200, Golden CO 80401, and (303) 239-5400.

THE PARTIES AGREE AS FOLLOWS:

2. PURPOSE

The purpose of this term contract is to establish a list of Environmental Service Providers in several service areas. All qualified offerors will be assembled into a multiple contractor term contract for use by state agencies and other public procurement units. The State makes no guarantee of use by any agency-authorized access to this term contract. However, through data conveyed by the Montana Department of Environmental Quality, Montana Department of Natural Resources and Conservation, and Montana Fish, Wildlife and Parks, it is anticipated that this term contract should access approximately 2.5 million dollars or more annually.

3. EFFECTIVE DATE, DURATION, AND RENEWAL

3.1 Contract Term. This contract shall take effect upon execution of all signatures, and terminate on June 30, 2007, unless terminated earlier in accordance with the terms of this contract. (Mont. Code Ann. § 18-4-313.)

3.2 Contract Renewal. This contract may, upon mutual agreement between the parties and according to the terms of the existing contract, be renewed in one-year intervals, or any interval that is advantageous to the State, for a period not to exceed a total of four additional years. This renewal is dependent upon legislative appropriations.

3.3 Addition of Analytical Laboratory Contractor. Proposals will be accepted between April 1 and May 1 of each calendar year from current firms requesting review of their qualifications to perform Analytical Laboratory Services as originally requested under RFP SPB05-894P. The state will evaluate each proposal received in the exact manner in which the original proposals for other categories were evaluated. If proposal passes the requirements as evaluated to perform Analytical Lab Services, the state will update that firms term contract to include the Analytical Lab Services category contingent on said firm being in good standing otherwise.

4. NON-EXCLUSIVE CONTRACT

The intent of this contract is to provide state agencies with an expedited means of procuring supplies and/or services. This contract is for the convenience of state agencies and is considered by the State Procurement Bureau to be a "Non-exclusive" use contract. Therefore, agencies may obtain this product/service from sources other than the contract holder(s) as long as they comply with Title 18, MCA, and their delegation agreement. The State Procurement Bureau does not guarantee any usage.

5. COOPERATIVE PURCHASING

Under Montana law, public procurement units, as defined in section 18-4-401, MCA, have the option of cooperatively purchasing with the State of Montana. Public procurement units are defined as local or state public procurement units of this or any other state, including an agency of the United States, or a tribal procurement unit. Unless the bidder/offeror objects, in writing, to the State Procurement Bureau prior to the

award of this contract, the prices, terms, and conditions of this contract will be offered to these public procurement units.

6. TERM CONTRACT REPORTING

Term contract holder(s) shall furnish annual reports of term contract usage. Each report shall contain the product description, total quantity sold of each item, total dollars expended, and the name of the agency purchasing the item. The first report for this term contract will be due July 15, 2006.

Reported volumes and dollar totals may be checked by the State Procurement Bureau against State records for verification. Failure to provide timely or accurate reports is justification for cancellation of the contract and/or justification for removal from consideration for award of contracts by the State.

7. COST/PRICE ADJUSTMENTS

7.1 Cost Increase by Mutual Agreement. After the initial term of the contract, each renewal term may be subject to a cost increase by mutual agreement. Contractor must provide written, verifiable justification for any cost adjustments they request during each renewal period. Contractor shall provide its cost adjustments in both written and electronic format.

7.2 Differing Site Conditions. If, during the term of this contract, circumstances or conditions are materially different than set out in the specifications, the Contractor may be entitled to an equitable adjustment in the contract price. The Contractor shall immediately cease work and notify, in writing, the State of any such conditions necessitating an adjustment as soon as they are suspected and prior to the changed conditions affecting the performance of this contract. Any adjustment shall be agreed upon in writing by both parties to the contract.

7.3 Cost/Price Adjustment. All requests for cost/price adjustment must be submitted between April 1st and April 30th along with written justification. Requests received after April 30th will not be considered unless written approval from the SPB Contracts Officer is given to submit at a later date. In no event will cost/price adjustments be allowed beyond May 15th. All requests that are approved will be incorporated by contract amendment and made effective July 1st of the next approved renewal period.

8. SERVICES AND/OR SUPPLIES

8.1 Service Categories. Contractor agrees to provide to the State the following services:

Water Quality Monitoring – Fixed Station and Probabilistic Design. The statewide monitoring network has three components. The first component is the fixed station water quality-monitoring network. There are 38 fixed station sites located on streams throughout Montana where there are active USGS gauging stations. The USGS is currently contracted to collect all of the water chemistry samples. The State may also collect sediment samples for trace metal analyses. Remote sensing may be used to assess stream geomorphology, flood plain and watershed characteristics.

Water Quality Monitoring - Lakes and Streams. As part of the monitoring program, standards criteria and TMDL development, lakes will continue to be sampled collecting chemistry, physical, and habitat parameters. Stream sampling may include sediment and water chemistry, geomorphology, habitat, or sources of pollutants (e.g., pebble counts, channel cross-section, stream reach assessments, photo points, Rosgen Type II, etc GIS and remote sensing may be used to assess riparian habitats, and watershed physical characteristics.

Water Quality Monitoring - Reference Sites. As part of the monitoring program and standards criteria development, reference sites will continue to be identified and characterized as described in 3.5.2.

TMDL Targets. The TMDL program (within DEQ) will often need additional data in order to develop TMDL targets. Targets are quantitative water quality goals or "endpoints" that represent all the applicable narrative or numeric water quality standards. These targets, when achieved will represent full beneficial use support. This may require additional monitoring to determine reference condition when TMDL targets are based on narrative criteria or designated uses (water quality standards). Targets may be based on numeric water quality criteria, pollutant concentrations or loads, habitat or geomorphic measures, and/or biological criteria or populations. Targets are also used to determine the existing Water Quality Impairment Status (WQIS) of the streams on the 303(d) list. In most cases, the contractor will be required to write a report, which includes a recommendation and justification for one or more TMDL targets and also compare those targets to the existing conditions to determine WQIS. Communication with the State is crucial while deriving preliminary targets to ensure TMDL consistency across Montana. For consideration in this service area, the contractor should also have experience and be accepted for service categories 3.5.4 and 3.5.12-15.

TMDL Source Assessment/Delineation. The TMDL program (within DEQ) will often need additional data in order to link water quality impairments to their sources, or to allocate sources of pollutants. This may require data compilation, investigative monitoring and statistical analysis within a specified watershed, which can be used for source allocation, or the linkage of water quality impairments to causes and sources of impairment (e.g., sediment or land use practices). Quantitative source assessments may be conducted using field-based monitoring and/or interpretation and analysis of aerial photos, digital images, or GIS coverages depending upon impairment sources and available information. In most cases, contractors will be required to write a report that identifies what the major causes of impairment are and where the major sources of pollutants are located. DEQ will also need to have all pollution/pollutant sources quantified. The quantification of these loads will assist in both source load allocations and the total maximum daily loads. In addition, data collected during source assessments must be entered into an approved database structure or format and linkage to the National Hydrography Dataset (NHD) streams layer may be requested. The department may also request a cost/benefit analysis for implementing BMPs, which can be used for developing TMDL source allocations. Communication with the State is crucial while deriving assessing sources of pollutants to ensure TMDL consistency across Montana. For consideration in this service area, the contractor should also have experience and be accepted for service categories 3.5.4, 3.5.6, and 3.5.12-15.

TMDL Load Allocations. The TMDL program (within DEQ) will often need additional data in order to develop load allocations in conjunction with the source assessment/delineation. Load allocations are the portion of a receiving water's loading capacity that is attributed to existing or future point or non-point sources of pollution or to natural background sources. Load allocations are best estimates of the loading, which can range from reasonably accurate estimates to gross allotments. Allocation can be expressed as a percent reduction that results in a maximum allowable load or as performance-based, which demonstrates how BMPs will be applied and how they will reduce the current loads. Communication with the State is crucial while deriving preliminary load allocations to ensure TMDL consistency across Montana. For consideration in this service area, the contractor should also have experience and be accepted for service categories 3.5.4, 3.5.6-7, and 3.5.12-15.

Total Maximum Daily Loads. The TMDL program (within DEQ) will often need additional data in order to develop Total Maximum Daily Loads (TMDLs). A TMDL is defined as the sum of the wasteload allocations to point sources, load allocations to non-point sources and natural background sources with a margin of safety considering seasonal variation. TMDLS can be expresses in terms of mass per time, toxicity, or other appropriate measures that relate to the State's Water Quality Standards. Communication with the State is crucial while deriving preliminary TMDLs to ensure consistency across Montana. For consideration in this service area, the contractor should also have experience and be accepted for service categories 3.5.4, 3.5.6-8, and 3.5.12-15.

Stakeholder Participation. The TMDL program (within DEQ) will often need additional assistance in order to develop implementation/restoration strategies and monitoring plans. These plans often require public involvement with the local stakeholders. These efforts typically results in developing the measures needed to achieve full beneficial use support or to monitoring the uncertainties that arise during the TMDL process.

Offerors should be experienced in or have staff members with proper credentials to facilitate participation with local stakeholders.

TMDL Effectiveness Monitoring. Effectiveness monitoring will be required to evaluate the success of implementing a TMDL plan. Monitoring will often include the collection of some combination of chemical, physical or biological data, which can be used to determine if water quality is improving over time. Most monitoring designs and techniques will be fairly straightforward and may only require visiting a site once per year. In most cases, the contractor will be required to write an annual report, which can be used to determine if water quality is improving.

Geographic Information Systems (GIS) Services. The State, and in particular DEQ, will need assessments that characterize a watershed and identify and quantify all probable sources of pollutants. GIS maps will be required for every waterbody that is assessed. Thematic maps may include, but are not limited to: land ownership, land use, topography, hydrology, soils, precipitation, and/or endangered species distribution. In addition, DEQ may request that GIS applications be used to facilitate the interpretation and analysis of digital images and/or other georeferenced data.

Water Quality Modeling. The State, and in particular DEQ, uses contracted services in the development and/or application of watershed and water quality modeling tools and techniques in the development of TMDLs. Models may be used to assist in defining TMDL loading allocations, performing existing/potential conditions analysis, watershed scenario analysis, and/or standards attainment analysis. The types of models that may be employed include dynamic watershed loading models (i.e. SWAT, HSPF), water quality fate and transport models (i.e. QUAL2E, QUAL2K), stream temperature and/or shade models (i.e. SSTemp, HeatSource, Shadow), and multi-dimensional lake/reservoir models (i.e. CE QUAL W2). In addition, simpler modeling tools and techniques such as GIS-based Risk Assessment Modeling may be employed or developed based on project needs and resources. The DEQ may also seek assistance in the identification and/or development of simple modeling tools that may be implemented at the desktop that facilitate quick scenario applications. These tools should be able to focus on specific water quality issues such as sediment, nutrients, salinity, etc. and be tailored to the various (eco) regions across the state.

Statistical Analysis. The State may request that large data sets be statistically analyzed for determining trends or for making comparisons. This service area may include data compilation, organization, manipulation and analysis. These analyses may be used to validate environmental targets by comparing reference data to existing data. They may also be used to establish a relationship or linkage between indicators and targets, the estimated loads and how targets link to beneficial use support. Analyses should be appropriate for the type of data being analyzed. In many cases, the contractor will be responsible for determining and providing rationale for appropriate statistical analyses to address pre-formulated environmental hypotheses. Analyses must consider spatial and temporal variations. Analyses may range from providing simple descriptive statistics to reporting multifactor predictive analyses.

DEQ Electronic Data / Information Technical Assistance. The DEQ needs to be able to easily transmit water quality data into the modernized STORET database and make it more accessible to data consumers and the public. To accomplish this, the DEQ seeks to obtain technical products, services, and support, as needed, to migrate datasets to production database system(s) and improve data flow and data quality from a variety of sources into STORET. These tasks may include, but are not limited to solutions in commonly available software products to generate data that conforms to STORET and Oracle database requirements. Specific service areas sought include, but are not limited to: technical support for data conversion, reformatting, and/or normalization of existing historic and transformed datasets; automated data validation routines or procedures designed to support specific data quality objectives; technical solutions for data entry, data capture, and data reporting, maintenance, upgrades or enhancements to existing software interfaces; technical support in the implementation of STORET; acquisition of STORET-compatible data deliverables.

Watershed Coordination. Within the State of Montana, there are over 50 active watershed groups that are comprised of local stakeholders working together for the efficient use and preservation of the natural

resources. The watershed groups typically work with State and Federal agencies to complete agreed upon tasks. The funding for the activities is usually in the form of State and Federal grant funds in which the group must apply and compete for the awards. Therefore, the watershed groups either designate or hire a professional coordinator to research and secure funds, organize public meetings, facilitate the public meetings, represent the group at local, regional, state and even national conferences. The offeror's in this service area must make sure that they will not have a conflict of interest. The coordinator and/or their firm cannot compete for any projects or activities under the jurisdiction of the watershed group.

Communication/Educational Services – Information & Education. Communication/education contractor specializing in information and education would assist in implementing the statewide information and education program for designated environmental projects. An example would be for the non-point sources of pollution as defined in the federal Clean Water Act. Some potential activities related to the aforementioned example are: hydromodification, stormwater runoff, raising livestock, farming, logging, land disposal, construction, historic mining districts, atmospheric deposition, transportation, and habitat modification. The Information and Education services would be targeted towards specific projects develop by the State or governmental entities.

Communication/Education Services – Information Transfer & TMDL Technical Editing. Communication/education contractor specializing in information transfer would assist in the design, production and distribution of information for target audiences via TV, radio, or print media. These projects often require the conversion of complex water quality data into information the public can understand. Products include pamphlets, brochures, guidebooks, and videos; maintaining a webpage, writing press releases; set up public meetings, give interviews, make presentations at workshops and conferences and organize conferences and set up field trips. Offerors in this field may also specify their ability to provide Technical Editing of Natural Science documents, in particular Total Maximum Daily Load documents. Technical editing can include, but is not limited to proofreading for grammar and mathematical errors, document clarity, and linkage between different sections.

8.2 Reuse of Documents. When the projects dictate a design or engineered approach, the State agrees that it will not apply the Contractor's designs to any other projects.

9. ENGINEERING ACCESS

All of the firms selected may need to have access to engineering services depending on the nature of the project. The contractor(s) will be expected to use their own best judgment as to whether engineering services are needed for a given project. However, traditional engineering methodologies are not the emphasis of this RFP. It is a violation of State Statute to practice engineering or land surveying without a license.

10. PROJECT SELECTION

10.1 Project Identification. The State will be responsible for identifying projects, contacting landowners and securing necessary permission/cooperation agreements, selecting a contractor, writing grant applications and approving project payments.

10.2 Hazardous Materials. The State will not initiate projects where it is known that hazardous materials are present. If there is an indication of a potential of hazardous materials, then the State will do testing prior to contacting the contractor. However, there is always the possibility of unforeseen problems resulting in the stoppage of a project.

10.3 Meetings. The selected contractor may be required to meet with State personnel at the project site to conduct a site evaluation, discuss project issues and begin the negotiation process on project feasibility, conceptual design and costs for each project.

10.4 Approach Expectations. In the case of restoration activities, the agency will identify the preferred techniques. The determination made by the State may define which contractor(s) are contacted for project initiation. The State is always open to new and innovative approaches that accomplish project goals.

11. SELECTING A CONTRACTOR

The State may select a term contract holder from the Environmental Services contract home page as provided under the state's website address http://www.discoveringmontana.com/doa/gsd/procurement/TermContracts/environservices/Default.asp, taking into consideration such things as the contractor's area of expertise, requirements and location of the project, the contractor's availability and access to resources necessary to efficiently and effectively complete the project, demonstrated excellent past performance on State and public projects, identified subcontractors and total project cost.

General. Ordering agencies shall use the procedures in this section when ordering services priced at hourly rates as established by each Term Contract (TC). The applicable service categories are identified in each TC along with the contractor's price lists.

Request for Quotation (RFQ) procedures. The ordering agency must provide an RFQ, which includes the statement of work and limited, but specific evaluation criteria (*e.g.*, experience and past performance), to TC contractors that offer services that will meet the agency's needs. The RFQ may be posted to the agency's state website to expedite responses.

Statement of Work (SOWs). All SOW's shall include at a minimum a detailed description of the work to be performed, location of work, period of performance, deliverable schedule, applicable performance standards and any special requirements (e.g., security clearances, travel, special knowledge).

(1) Ordering agency may select a contractor from the appropriate service category and directly negotiate a mutually acceptable project based on a sudden and unexpected happening or unforeseen occurrence or condition, which requires immediate action. (Exigency).

(2) Ordering agency may place orders at or below the $5,000 threshold with any TC contractor that can meet the agency's needs. The ordering agency should attempt to distribute orders among all service category contractors.

(3) For orders estimated to exceed $5,000 but less than $25,000.

(i) The ordering agency shall develop a statement of work.
(ii) The ordering agency shall provide the RFQ (including the statement of work and evaluation criteria) to at least three TC contractors that offer services that will meet the agency's needs.
(iii) The ordering agency shall request that contractors submit firm-fixed prices to perform the services identified in the statement of work.

(4) For orders estimated to exceed $25,000. In addition to meeting the requirements of (3) above, the ordering agency shall:

(i) Provide the RFQ (including the statement of work and the evaluation criteria) to a minimum of six service category TC contractors (if category has less than 6, all contractors will be offered an RFQ) with a 50% replacement factor for each subsequent request for quote in the same service category.

Evaluation. The ordering agency shall evaluate all responses received using the evaluation criteria provided in the RFQ to each TC contractor. The ordering agency is responsible for considering the level of effort and the mix of labor proposed to perform a specific task being ordered, and for determining that the total price is reasonable. The agency will place the order with the contractor that represents the best value. After award, ordering agencies will provide timely notification to unsuccessful TC contractors. If an unsuccessful TC

contractor requests information on a task order award that was based on factors other than price alone, a brief explanation of the basis for the award decision shall be provided.

Minimum documentation. The ordering agency shall document:
(1) The TC contractors considered, noting the contractor from which the service was purchased.
(2) A description of the service purchased.
(3) The amount paid.
(4) The evaluation methodology used in selecting the contractor to receive the order.
(5) The rationale for making the selection.
(6) Determination of price fair and reasonableness.
Agency project task orders will be utilized to finalize the project. Only written addenda will be used for adjustments of the task orders and must be signed by both parties. All task orders must contain signatures from both parties and appropriate agency legal review as directed in their procurement policy.

The State will monitor contractor selection by using the information provided in the annual TC usage reports.

Contractor's who fail to respond to three RFQ opportunities within a one-year period between July 1st and June 30th may be removed from the qualified list of contractors.

12. CONTRACTOR RESPONSIBILITIES

12.1 Supervision and Implementation. The selected contractor for an individual project will be responsible for the supervision and implementation of the approach and will be responsible for oversight of work performed by all subcontractors. In most cases the contractor will provide and be responsible for all the necessary equipment, materials, supplies and personnel necessary for proper execution of the work. However, the State reserves the right to hire subcontractors (equipment and/or labor) if it will provide a cost savings to the State. The selected contractor will also be responsible for clean up of the sites if necessary and must have the sites inspected by the State immediately prior to completion.

12.2 On-Site Requirements. When a contractor is contacted by the State to discuss a project, the State and the contractor may visit the job site if deemed necessary by the Project Manager, to become familiar with conditions relating to the project and the labor requirements. The State will provide a detailed scope of work for the project and request the contractor supply the State with a response to project approach, cost, timeframe and any other information deemed necessary by the State to make a selection or complete a contract negotiation.

In the cases of Restoration or On-The-Ground Activities, the contractor shall adequately protect the work, adjacent property, and the public in all phases of the work. They shall be responsible for all damages or injury due to their action or neglect.

The contractor shall maintain access to all phases of the contract pending inspection by the State, the landowner, or their representative. All interim or final products funded by the contract will become the property of the State or Cooperative Purchaser upon payment for said products.

All work rejected as unsatisfactory shall be corrected prior to final inspection and acceptance. The contractor shall respond within seven calendar days after notice of observed defects has been given and shall proceed to immediately remedy these defects. Should the contractor fail to respond to the notice or not remedy the defects, the State may have the work corrected at the expense of the contractor.

12.3 Clean Up (when project tasks require). The contractor shall:

- Keep the premises free from debris and accumulation of waste;
- Clean up any oil or fuel spills;
- Keep machinery clean and free of weeds;
- Remove all construction equipment, tools and excess materials; and

- Perform finishing site preparation to limit the spread of noxious weeds before final payment by the State.

12.4 Applicable Laws. The contractor shall keep informed of, and shall comply with all applicable laws, ordinances, rules, regulations and orders of the City, County, State, Federal or public bodies having jurisdiction affecting any work to be done to provide the services required. The contractor shall provide all necessary safeguards for safety and protection, as set forth by the United States Department of Labor, Occupational Safety and Health Administration.

12.5 Cooperation. The contractor shall work closely with the States analytical consultants, (i.e. environmental laboratories and taxonomists) to develop the desired products.

12.6 Work Acceptance. The contractor is responsible for project oversight as needed. The State may also periodically provide personnel for administrative oversight from the initiation of the contract through project completion. All work will be inspected by the State or designated liaison prior to approval of any contract payments. All work rejected as unsatisfactory shall be corrected prior to final inspection and acceptance. Contractor shall respond within seven calendar days after notice of defects has been given by the State and proceed to immediately remedy all defects.

12.7 Records. The contractor will supply the State with documentation, when requested, of methods used throughout project implementation. Contractor will maintain records for themselves and all subcontractors of supplies, materials, equipment and labor hours expended.

12.8 Communication. Remoteness of project sites may necessitate that the contractor have some form of field communication such as a cellular phone. This communication is necessary to enable the State to respond to public concerns related to the project, accidents, inspections, or other project issues that require immediate feedback. In addition, the State or Cooperative Purchaser may require scheduled communication at agreed upon intervals. The communication schedule will be dependent upon the project circumstances and requirements of the contracting agency. In the case when a communication schedule is included in the Scope of Work, the schedule will commence when the contractor initiates the project.

12.9 Change of Staffing. Since qualifications of personnel were key in determining which offerors were selected to be on this TC, a written notification of any changes in key personnel must be made to the state agency, prior to entering into negotiations to perform any specific work scope. Contractor shall replace such employee(s) at its own expense with an employee of substantially equal abilities and qualifications without additional cost to the agency. If these staffing changes cause the contractor to no longer meet the qualifications stated herein, that firm will be removed from the service area of this TC. Failure to notify the state agency of staffing changes could result in the contractor being removed from the TC listing and possible suspension from bidding on other state projects.

12.10 Collaboration. The State encourages collaboration between contractors to increase the scope of services offered. In cases where the chosen contractor is not able to provide all services needed for the project, the State will expect the chosen contractor to contact other contractors on this list to negotiate subcontracts for these services before going elsewhere. Exceptions to this strategy will be evaluated on a case-by-case basis.

12.11 Subcontractors, Project Budget and Invoicing. All subcontractors to be used in any project must be approved by the authorized entity initiating the project. Project budgets will be negotiated for each individual project contract. However, all rates, terms and conditions set forth in this term contract will be applied to individual contracts. Subcontractor is defined as anyone other than the prime contractor having substantial direct involvement in a specific project.

The State reserves the right to choose the invoicing method from the following:

- Prime contractor's billing will include the subcontractors charges and payment will be made to the prime, or
- Prime and subcontractors will bill the State separately and the State will pay each directly.

13. CONSIDERATION/PAYMENT

13.1 Payment Schedule. In consideration for the services to be provided, the State shall pay according to the negotiated agreement for each project. Hourly rates and miscellaneous charges as provided in Attachment B shall apply.

13.2 Withholding of Payment. The State may withhold payments to the Contractor if the Contractor has not performed in accordance with this contract. Such withholding cannot be greater than the additional costs to the State caused by the lack of performance.

14. CONTRACTOR WITHHOLDING

Section 15-50-206, MCA, requires the state agency or department for whom a public works construction contract over $5,000 is being performed, to withhold 1 percent of all payments and to transmit such monies to the Department of Revenue.

15. MONTANA PREVAILING WAGE REQUIREMENTS

Unless superseded by federal law, Montana law requires that contractors and subcontractors give preference to the employment of Montana residents for any public works contract in excess of $25,000 for construction or nonconstruction services in accordance with sections 18-2-401 through 18-2-432, MCA, and all administrative rules adopted pursuant thereto. Unless superseded by federal law, at least 50% of the workers of each contractor engaged in construction services must be performed by bona fide Montana residents. The Commissioner of the Montana Department of Labor and Industry has established the resident requirements in accordance with sections 18-2-403 and 18-2-409, MCA. Any and all questions concerning prevailing wage and Montana resident issues should be directed to the Montana Department of Labor and Industry.

In addition, unless superseded by federal law, all employees working on a public works contract shall be paid prevailing wage rates in accordance with sections 18-2-401 through 18-2-432, MCA, and all administrative rules adopted pursuant thereto. Montana law requires that all public works contracts, as defined in section 18-2-401, MCA, in which the total cost of the contract is in excess of $25,000, contain a provision stating for each job classification the standard prevailing wage rate, including fringe benefits, travel, per diem, and zone pay that the contractors, subcontractors, and employers shall pay during the public works contract.

Furthermore, section 18-2-406, MCA, requires that all contractors, subcontractors, and employers who are performing work or providing services under a public works contract post in a prominent and accessible site on the project staging area or work area, no later than the first day of work and continuing for the entire duration of the contract, a legible statement of all wages and fringe benefits to be paid to the employees in compliance with section 18-2-423, MCA. Section 18-2-423, MCA, requires that employees receiving an hourly wage must be paid on a weekly basis.

Each contractor, subcontractor, and employer must maintain payroll records in a manner readily capable of being certified for submission under section 18-2-423, MCA, for not less than three years after the contractor's, subcontractor's, or employer's completion of work on the public works contract.
The nature of the work performed or services provided under this contract meets the statutory definition of a "public works contract" under section 18-2-401(11)(a), MCA, and falls under the category of Heavy Construction and Nonconstruction services. The booklets containing Montana's 2003 Rates for Heavy Construction and Nonconstruction Services are attached.

The most current Montana Prevailing Wage Booklet will automatically be incorporated at time of renewal. It is the contractor's responsibility to ensure they are using the most current prevailing wages during performance of its covered work.

16. ACCESS AND RETENTION OF RECORDS

16.1 Access to Records. The Contractor agrees to provide the State, Legislative Auditor or their authorized agents access to any records necessary to determine contract compliance. (Mont. Code Ann. § 18-1-118.)

16.2 Retention Period. The Contractor agrees to create and retain records supporting the environmental services for a period of three years after either the completion date of this contract or the conclusion of any claim, litigation or exception relating to this contract taken by the State of Montana or a third party.

17. ASSIGNMENT, TRANSFER AND SUBCONTRACTING

The Contractor shall not assign, transfer or subcontract any portion of this contract without the express written consent of the State. (Mont. Code Ann. § 18-4-141.) The Contractor shall be responsible to the State for the acts and omissions of all subcontractors or agents and of persons directly or indirectly employed by such subcontractors, and for the acts and omissions of persons employed directly by the Contractor. No contractual relationships exist between any subcontractor and the State.

18. HOLD HARMLESS/INDEMNIFICATION

The Contractor agrees to protect, defend, and save the State, its elected and appointed officials, agents, and employees, while acting within the scope of their duties as such, harmless from and against all claims, demands, causes of action of any kind or character, including the cost of defense thereof, arising in favor of the Contractor's employees or third parties on account of bodily or personal injuries, death, or damage to property arising out of services performed or omissions of services or in any way resulting from the acts or omissions of the Contractor and/or its agents, employees, representatives, assigns, subcontractors, except the sole negligence of the State, under this agreement.

19. REQUIRED INSURANCE

19.1 General Requirements. The Contractor shall maintain for the duration of the contract, at its cost and expense, insurance against claims for injuries to persons or damages to property, including contractual liability, which may arise from or in connection with the performance of the work by the Contractor, agents, employees, representatives, assigns, or subcontractors. This insurance shall cover such claims as may be caused by any negligent act or omission.

19.2 Primary Insurance. The Contractor's insurance coverage shall be primary insurance as respect to the State, its officers, officials, employees, and volunteers and shall apply separately to each project or location. Any insurance or self-insurance maintained by the State, its officers, officials, employees or volunteers shall be excess of the Contractor's insurance and shall not contribute with it.

19.3 Specific Requirements for Commercial General Liability. The Contractor shall purchase and maintain occurrence coverage with combined single limits for bodily injury, personal injury, and property damage of $1,000,000 per occurrence and $2,000,000 aggregate per year to cover such claims as may be caused by any act, omission, or negligence of the Contractor or its officers, agents, representatives, assigns or subcontractors.

19.4 Additional Insured Status. The State, its officers, officials, employees, and volunteers are to be covered and listed as additional insureds; for liability arising out of activities performed by or on behalf of the Contractor, including the insured's general supervision of the Contractor; products and completed operations; premises owned, leased, occupied, or used.

19.5 Specific Requirements for Automobile Liability. The Contractor shall purchase and maintain coverage with split limits of $500,000 per person (personal injury), $1,000,000 per accident occurrence (personal injury), and $100,000 per accident occurrence (property damage), OR combined single limits of

$1,000,000 per occurrence to cover such claims as may be caused by any act, omission, or negligence of the contractor or its officers, agents, representatives, assigns or subcontractors.

19.6 Additional Insured Status. The State, its officers, officials, employees, and volunteers are to be covered and listed as additional insureds for automobiles leased, hired, or borrowed by the Contractor.

19.7 Specific Requirements for Professional Liability. The Contractor shall purchase and maintain occurrence coverage with combined single limits for each wrongful act of $1,000,000 per occurrence and $2,000,000 aggregate per year to cover such claims as may be caused by any act, omission, negligence of the Contractor or its officers, agents, representatives, assigns or subcontractors. Note: if "occurrence" coverage is unavailable or cost prohibitive, the Contractor may provide "claims made" coverage provided the following conditions are met: (1) the commencement date of the contract must not fall outside the effective date of insurance coverage and it will be the retroactive date for insurance coverage in future years; and (2) the claims made policy must have a three year tail for claims that are made (filed) after the cancellation or expiration date of the policy.

19.8 Deductibles and Self-Insured Retentions. Any deductible or self-insured retention must be declared to and approved by the state agency. At the request of the agency either: (1) the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the State, its officers, officials, employees, or volunteers; or (2) at the expense of the Contractor, the Contractor shall procure a bond guaranteeing payment of losses and related investigations, claims administration, and defense expenses.

19.9 Certificate of Insurance/Endorsements. A certificate of insurance from an insurer with a Best's rating of no less than A- indicating compliance with the required coverages, has been received by the State Procurement Bureau, PO Box 200135, Helena MT 59620-0135. The Contractor must notify the State immediately, of any material change in insurance coverage, such as changes in limits, coverages, change in status of policy, etc. The State reserves the right to require complete copies of insurance policies at all times.

20. COMPLIANCE WITH THE WORKERS' COMPENSATION ACT

Contractors are required to comply with the provisions of the Montana Workers' Compensation Act while performing work for the State of Montana in accordance with sections 39-71-120, 39-71-401, and 39-71-405, MCA. Proof of compliance must be in the form of workers' compensation insurance, an independent contractor's exemption, or documentation of corporate officer status. Neither the contractor nor its employees are employees of the State. This insurance/exemption must be valid for the entire term of the contract. A renewal document must be sent to the State Procurement Bureau, PO Box 200135, Helena MT 59620-0135, upon expiration.

21. COMPLIANCE WITH LAWS

The Contractor must, in performance of work under this contract, fully comply with all applicable federal, state, or local laws, rules and regulations, including the Montana Human Rights Act, the Civil Rights Act of 1964, the Age Discrimination Act of 1975, the Americans with Disabilities Act of 1990, and Section 504 of the Rehabilitation Act of 1973. Any subletting or subcontracting by the Contractor subjects subcontractors to the same provision. In accordance with section 49-3-207, MCA, the Contractor agrees that the hiring of persons to perform the contract will be made on the basis of merit and qualifications and there will be no discrimination based upon race, color, religion, creed, political ideas, sex, age, marital status, physical or mental disability, or national origin by the persons performing the contract.

22. INTELLECTUAL PROPERTY

All patent and other legal rights in or to inventions created in whole or in part under this contract must be available to the State for royalty-free and nonexclusive licensing. Both parties shall have a royalty-free, nonexclusive, and irrevocable right to reproduce, publish or otherwise use and authorize others to use, copyrightable property created under this contract.

23. PATENT AND COPYRIGHT PROTECTION

23.1 Third Party Claim. In the event of any claim by any third party against the State that the products furnished under this contract infringe upon or violate any patent or copyright, the State shall promptly notify Contractor. Contractor shall defend such claim, in the State's name or its own name, as appropriate, but at Contractor's expense. Contractor will indemnify the State against all costs, damages and attorney's fees that accrue as a result of such claim. If the State reasonably concludes that its interests are not being properly protected, or if principles of governmental or public law are involved, it may enter any action.

23.2 Product Subject of Claim. If any product furnished is likely to or does become the subject of a claim of infringement of a patent or copyright, then Contractor may, at its option, procure for the State the right to continue using the alleged infringing product, or modify the product so that it becomes non-infringing. If none of the above options can be accomplished, or if the use of such product by the State shall be prevented by injunction, the State will determine if the Contract has been breached.

24. CONTRACT TERMINATION

24.1 Termination for Cause. The State may, by written notice to the Contractor, terminate this contract in whole or in part at any time the Contractor fails to perform this contract.

24.2 Reduction of Funding. The State, at its sole discretion, may terminate or reduce the scope of this contract if available funding is reduced for any reason. (See Mont. Code Ann. § 18-4-313(3).)

25. STATE PERSONNEL

25.1 State Contract Manager. The State Contract Manager identified below is the State's single point of contact and will perform all contract management pursuant to section 2-17-512, MCA, on behalf of the State. Written notices, requests, complaints or any other issues regarding the contract should be directed to the State Contract Manager.

The State Contract Manager for this contract is:

Robert Oliver, Contracts Officer
Room 165 Mitchell Building
125 North Roberts
PO Box 200135
Helena MT 59620-0135
Telephone #: (406) 444-0110
Fax #: (406) 444-2529
E-mail: ROliver@mt.gov

25.2 State Project Manager. Each using State agency or Cooperative Purchaser will identify a Project Manager in the project task order. The Project Manager will manage the day-to-day project activities on behalf of the State/Cooperative Purchaser.

26. CONTRACTOR PERSONNEL

26.1 Change Of Staffing. Since qualifications of personnel was key in determining which offerors were selected to be on this term contract list, a written notification to the State Procurement Bureau of any changes of key personnel must be made within two weeks of the change. These change notifications will be completed upon the departure or hiring of key personnel who are professional employees critical to awarded service areas. If these staffing changes cause the firm to no longer meet the qualifications stated herein, that firm will be removed from the service area of this term contract. Failure to notify the State Procurement Bureau of staffing changes could result in the contractor being removed from the term contract listing and possible suspension from bidding on other State projects.

26.2 Contractor Contract Manager. The Contractor Contract Manager identified below will be the single point of contact to the State Contract Manager and will assume responsibility for the coordination of all contract issues under this contract. The Contractor Contract Manager will meet with the State Contract Manager and/or others necessary to resolve any conflicts, disagreements, or other contract issues.

The Contractor Contract Manager for this contract is:

Bret Linenfelser
1697 Cole Blvd Suite 200
Golden CO 80401
Telephone #: (303) 239-5442
Fax #: (303) 239-5454
E-mail: blinenfelser@brwncald.com

27.3 Contractor Project Manager. The Contractor Project Manager identified below will manage the day-to-day project activities on behalf of the Contractor:

The Contractor Project Manager for this contract is:

Bret Linenfelser
1697 Cole Blvd Suite 200
Golden CO 80401
Telephone #: (303) 239-5442
Fax #: (303) 239-5454
E-mail: blinenfelser@brwncald.com

27. MEETINGS

The Contractor is required to meet with the State's personnel, or designated representatives, to resolve technical or contractual problems that may occur during the term of the contract or to discuss the progress made by Contractor and the State in the performance of their respective obligations, at no additional cost to the State. Meetings will occur as problems arise and will be coordinated by the State. The Contractor will be given a minimum of three full working days notice of meeting date, time, and location. Face-to-face meetings are desired. However, at the Contractor's option and expense, a conference call meeting may be substituted. Consistent failure to participate in problem resolution meetings two consecutive missed or rescheduled meetings, or to make a good faith effort to resolve problems, may result in termination of the contract.

28. CONTRACTOR PERFORMANCE ASSESSMENTS

The State may do assessments of the Contractor's performance. This contract may be terminated for one or more poor performance assessments. Contractors will have the opportunity to respond to poor performance assessments. The State will make any final decision to terminate this contract based on the assessment and any related information, the Contractor's response and the severity of any negative performance assessment. The Contractor will be notified with a justification of contract termination. Performance assessments may be considered in future solicitations.

29. TRANSITION ASSISTANCE

If this contract is not renewed at the end of this term, or is terminated prior to the completion of a project, or if the work on a project is terminated, for any reason, the Contractor must provide for a reasonable period of time after the expiration or termination of this project or contract, all reasonable transition assistance requested by the State, to allow for the expired or terminated portion of the services to continue without interruption or adverse effect, and to facilitate the orderly transfer of such services to the State or its designees. Such transition assistance will be deemed by the parties to be governed by the terms and conditions of this contract, except for those terms or conditions that do not reasonably apply to such transition assistance. The State shall

pay the Contractor for any resources utilized in performing such transition assistance at the most current rates provided by the contract. If there are no established contract rates, then the rate shall be mutually agreed upon. If the State terminates a project or this contract for cause, then the State will be entitled to offset the cost of paying the Contractor for the additional resources the Contractor utilized in providing transition assistance with any damages the State may have otherwise accrued as a result of said termination.

30. CHOICE OF LAW AND VENUE

This contract is governed by the laws of Montana. The parties agree that any litigation concerning this bid, proposal or subsequent contract must be brought in the First Judicial District in and for the County of Lewis and Clark, State of Montana and each party shall pay its own costs and attorney fees. (See Mont. Code Ann. § 18-1-401.)

31. SCOPE, AMENDMENT AND INTERPRETATION

31.1 Contract. This contract consists of 12 numbered pages, any Attachments as required, RFP # SPB05-894P**,** as amended and the Contractor's RFP response as amended. In the case of dispute or ambiguity about the minimum levels of performance by the Contractor the order of precedence of document interpretation is in the same order.

31.2 Entire Agreement. These documents contain the entire agreement of the parties. Any enlargement, alteration or modification requires a written amendment signed by both parties.

32. EXECUTION

The parties through their authorized agents have executed this contract on the dates set out below.

DEPARTMENT OF ADMINISTRATION
STATE PROCUREMENT BUREAU
PO BOX 200135
HELENA MT 59620-0135

BY:_____
Penny Moon, Contracts Officer

BY:_____
(Signature)

DATE:_____

BROWN AND CALDWELL
1697 COLE BLVD SUITE 200
GOLDEN CO 80401
FEDERAL ID # 94-1446346

BY:_____
(Name/Title)

BY:_____
(Signature)

DATE:_____

ATTACHMENT A
CONTRACTOR'S RESPONSE

Introduction

In today's environment, water resource and environmental managers, such as the Montana Department of Environmental Quality, Montana Department of Natural Resources and Conservation, and Montana Fish, Wildlife and Parks, and are looking for comprehensive solutions to protect the environment and maintain good water quality. Water resource and environmental management services at Brown and Caldwell address a wide range of water quality and environmental issues which can help the State of Montana (State) achieve state-wide goals and perform services as outlined in the Environmental Services Request for Proposal (SPB05-894P). Brown and Caldwell's core team selected for this proposal are experienced in areas such as completing water quality and watershed assessments, total maximum daily load (TMDL) development for point and nonpoint sources, water quality modeling, load reduction strategies, and trading framework development. Strength in all of these areas is required to meet State water resource goals and requirements of the Clean Water Act.

Project Understanding and Goals

Our team understands the importance of preserving the valuable and unique environmental and water resources which exist in Montana. From discussions with State staff, and the contents of the Environmental Services Request for Proposal, the State's focus is to select qualified contractors to assist staff, on an as needed basis, within the range of Service Categories approved for the selected contractor. We understand that to provide the State with sound, cost effective technical assistance the selected consultant team should have the ability to:

- Provide solutions with tangible benefits;
- Develop project specific plans to address water quality impairments and TMDL requirements;
- Use sound science for technical analysis; and
- Provide the capability and flexibility to adjust to varying staff level requirements.

Provide Solutions with Tangible Benefits

Our team recognizes the importance of developing solutions which provide tangible benefits that the State can apply to achieve project-specific and state-wide goals. An example of a tangible benefit could be the development of a scientifically sound yet cost effective solution to achieving state and federal water quality goals for impaired waters in Montana. Our approach includes developing work products that address broader environmental benefits, in parallel with efforts originally focused on gaining water quality improvements to meet regulatory requirements. We have developed a team with the appropriate depth of technical experience to provide the necessary information on the technical feasibility, cost, and effectiveness of holistic solutions to water quality issues. With our help, the State will be able to make informed choices and decisions about the advantages and disadvantages of alternatives that can be implemented to achieve surface water beneficial uses and water quality goals of Montana.

Develop Project Specific Plans to Address Water Quality Impairments and TMDL Requirements

To provide a framework and starting point for a project, Brown and Caldwell proposes to develop a project specific plan for each project that focus on the issues and goals, as defined by the State, and an approach to a solution. As stated in Section 3.4.2, On-Site Requirements, of the Request for Proposal, the State will ask the selected contractor for a project approach, cost, timeframe and other necessary information for each project considered for the contractor. Applying a project specific plan to each requested project will provide the State with a clear understanding of the identified project issues and concerns that Brown and Caldwell is proposing to address. If necessary, multiple priorities will be ranked, and our team's technical experts, together with State staff, will evaluate the project needs, approach, schedule, cost and deliverables before making a final decision to move forward. Scientific project needs can be determined by asking a series of technical questions. For example, to complete a technically sound TMDL, the following questions should be considered between the State and consultant:

- Is the water body meeting water quality standards?
- When and under what conditions does the water body not meet water quality standards?
- Are there temporal or spatial trends?
- What is the relationship between pollutants?
- Are the water standards appropriate for site-specific conditions?
- How will changes in pollutant loading result in achievement of the water quality objectives?
- Can the pollutant sources be identified?
- What is the amount (load) of a pollutant to each source and what is its assimilative capacity?
- Is funding available to implement project recommendations?

In addition, in situations where a stakeholder-lead process is in place, this process should be integrated in to the project to ensure stakeholder support, which is critical to the success of any project.

Use Sound Science for Technical Analysis

Brown and Caldwell proposes to implement a process that develops technical sound project results used to achieve environmental, water quality and TMDL goals. This process is accomplished following:

- State and Federal guidance;
- Incorporating site-specific factors; and
- Leveraging off of Brown and Caldwell's experience obtained through the completion of similar projects.

We also recognize that managing a project includes managing information. Many of our water resources projects include collecting, managing, and analyzing data, and we have found that managing the data in relational databases provides easier use of the data, and has enabled efficient use of data for multiple clients and projects.

Where applicable, a strategic work plan will be developed to outline the best technical approach to be taken to achieve project goals, and to incorporate other critical factors such as a communication, project schedule, quality assurance/quality control procedures, technical and regulatory review process and implementation process. We have assembled a team that can execute multiple studies concurrently and provide a redundancy of technical expertise to execute all requested studies.

Provide the Capability and Flexibility to Adjust to Varying Staff Level Requirements

Brown and Caldwell's project management approach is based on clear lines of responsibility, teamwork, commitment and open communication. All Brown and Caldwell projects begin with the preparation of a Project Management Plan (see Section 4 of this proposal) that outlines the core team organization, scope of work, quality control measures, budgets, schedules, communication protocols, documentation and progress and cost tracking procedures. This process allows progress to be monitored and the ability to produce a high quality and cost effective project which has State staff buy-in during every step in the project.

We have assembled a core team of Brown and Caldwell staff with a broad array of technical expertise and depth of resources needed to respond to each request made by the State. Our core project team is shown in Section 5 of the proposal In addition, Brown and Caldwell has over 100 additional water resource staff available, if needed, to fill a specific technical role or to supplement personnel to complete a time sensitive project. This organizational structure relies on leadership of the core team, which will be provided by Mr. Bret Linenfelser, the Water Resource Practice Leader for the Denver and Billings offices, and Mr. David Fishbaugh, the Billings office manager. With the ability to choose from our core team of experts and over 100 additional water resource professionals, the State will have maximum flexibility to receive the appropriate qualifications and staffing resources to meet any need.

References (RFP Section 4.1.1)

Table 2 highlights recent, relevant Brown and Caldwell projects that feature successful application of the proposed environmental services identified in Table 1. This table includes a minimum of five project references for each of the selected Service Categories.

Company Profile and Experience (RFP Section 4.1.2)

Brown and Caldwell has formed a core technical and regulatory team that can meet the State of Montana (State) goals and objectives as outlined in the Environmental Services Request for Proposal (SPB05-894P). Our team provides a complementary approach to meet the complex needs of the State through local (Billings, Montana) staff and the extensive resources available throughout the country, and in particular the Golden (Denver), Colorado, office.

Company Profile

Since Ken Brown joined Dave Caldwell to form a partnership in 1947, Brown and Caldwell has grown from a three-person office in San Francisco to over 1,100 professionals in offices across the nation (Figure 1). 1997 marked Brown and Caldwell's 50th anniversary. Brown and Caldwell has been providing similar services to the proposed Service Categories for over 20 years. This longevity is related to one central factor -we deliver client success. We deliver this success by continually striving to identify and then exceed our clients' expectations by producing technically innovative, results-oriented solutions.

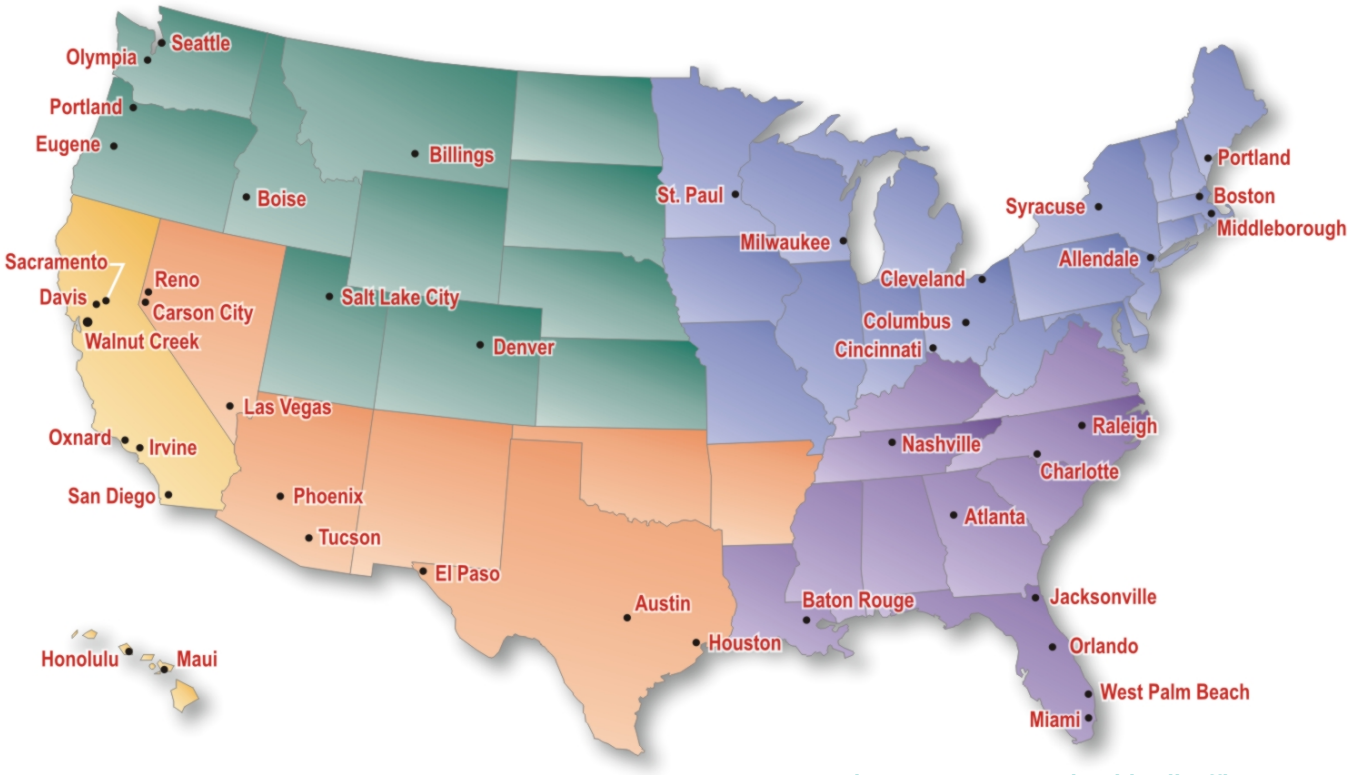


Figure 1. Brown and Caldwell Offices

Brown and Caldwell Background and Capabilities

Brown and Caldwell provides a full range of environmental and water resource capabilities, including:

- Watershed assessment/management
- Water quality assessment
- Beneficial use assessment
- Site-specific water quality criteria development
- NPDES permitting
- TMDL development
- Load allocation development
- TMDL Implementation Plans
- Water quality modeling
- Geographic Information System services
- Data evaluation and database management
- Stakeholder involvement
- Regulatory Compliance

Our reputation has been earned from a commitment to technical innovation, diversity, and quality that has kept us perpetually at the forefront of changing water resource and environmental needs. Our constant focus on listening to our clients' needs enables us to deliver the best possible combination of services and technology to resolve their problems.

Our reputation for integrating a full range of environmental services provides clients with solutions that most closely match their goals.

Client Service Goals

We provide multidisciplinary environmental and consulting services for municipal agencies, local communities, government, and industry. Our employee-owned structure fosters employee commitment which integrates three key considerations into every project: Three primary ways we provide client success are:

Understanding — We listen to your staff to learn what your needs are, understand your business and work environment, and match the right people to the job.

Reduce costs through innovative solutions — We find ways to use your existing resources to achieve your objectives in the most cost-effective manner.

Provide long-term savings — Long-range thinking is an integral part of our technical and regulatory expertise. Involving and being sensitive to clients' needs results in resolution of technical problems with long-lasting solutions, providing long-term savings.

Delivering client success demands more than a comprehensive array of water resource and environmental skills and services. Providing real depth of service requires a broad range of expertise and resources that can be focused on any project at any time. Our "best team" approach ensures that the most qualified technical and management personnel are individually selected for their unique ability to contribute to the success of a project and work in conjunction with State staff.

The Brown and Caldwell Billings and Denver offices will operate jointly to provide the primary point of contact for the State under the Environmental Services contract and will leverage other company resources throughout the country, as needed, to meet the specific needs of the State. State staff will get to know many of the core team members when conducting projects in the proposed Service Categories. This combined company support, in conjunction with working directly with State staff, will produce technically sound and scientifically supportable work products completed within budget, on schedule, and in a manner that satisfies the State's critical success factors for each project.

Experience

Our core team has provided comprehensive water resources, watershed management, and environmental services to a variety of federal, state, and local governments, private entities, and industrial clients. Table 3 provides a summary of recent and prominent projects that demonstrate our experience in the proposed Service Categories. All of the projects listed involve project staff identified in Section 5 Staff Qualifications.

State and Regional Experience

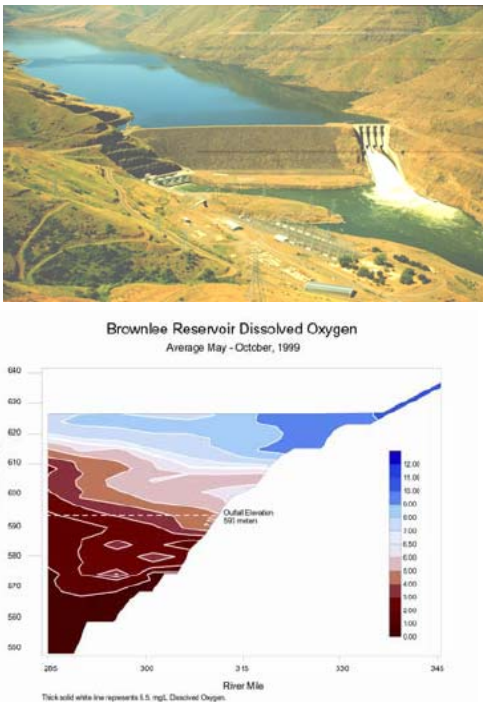
Brown and Caldwell has assisted other state and regional agencies with TMDL programs, including the following projects that involved many of the same proposed Service Categories.

- Minnesota Pollution Control Agency – Engineering Consulting Services for the Impaired Waters and Stormwater Programs
- Idaho Department of Environmental Quality – State-Wide Nutrient Data Evaluation and Nutrient Criteria Development Program
- Utah Division of Division of Oil, Gas and Mining and Department of Environmental Quality – Cottonwood Creek Gross Alpha Radiation TMDL
- Region VIII EPA – South Platte Urban TMDL and Watershed Project

Service Category Experience Details

The following select project descriptions provide more detail on Brown and Caldwell's experience on projects involving all the proposed Service Categories.

Snake River-Hell's Canyon Complex Phosphorus TMDL



Dissolved oxygen isopleth showing spatial variations helped evaluate TMDL target

Boise City, Idaho

Brown and Caldwell assisted in developing a phosphorus TMDL for a 100-mile stretch of the Snake River through the Hells Canyon Complex in Idaho,along the Oregon border, including Brownlee Reservoir and five major tributaries. The TMDL included a precedent-setting phosphorus target definition for the reservoir and river, development of load allocations for multiple tributaries and the operator of Brownlee Reservoir.

A trading framework was implemented based on the trading framework developed by Brown and Caldwell for the Lower Boise River, which is a major tributary to the Snake River and part of the Hells Canyon Complex TMDL. Brown and Caldwell developed and implemented a comprehensive water quality monitoring program for each of the water bodies. Monitoring data was stored in a relational database capable of readily incorporating additional data as the monitoring program was expanded to include tributary sampling. Data was used for impairment assessment, evaluation of nutrient response variables and water quality modeling. Water quality modeling was completed with QUAL2E to determine tributary allocations, evaluate impacts from point and non-

point sources and evaluate the effects of nitrogen and phosphorus on chlorophyll a and dissolved oxygen. Steady-state modeling was also completed on Brownlee Reservoir to assess anoxia and hypoxia and required scenarios for control of phosphorus and organic matter to achieve water body beneficial uses. CEQUAL-W2 was also evaluated as a predictive model for dissolved oxygen compliance.

A Public Advisory Team was formed to ensure communication and coordination among the Idaho and Oregon DEQs and various stakeholders, including point source and non-point sources. Working in conjunction with the Idaho and Oregon DEQs point source dischargers were required to treat to BNR levels for phosphorus (approximately 1.0 milligrams per liter [mg/L]) for the first phase of the TMDL, with TMDL compliance to be evaluated after the first 3-years of the TMDL to determine if additional point source reductions are necessary. The TMDL was initiated in 2000 and approved by EPA in 2004.

Benefits to Client:

- ✓ Water Quality Monitoring Fixed Station and Probabilistic Design
- ✓ Water Quality Monitoring Lakes and Streams
- ✓ Water Quality Monitoring Reference Sites
- ✓ TMDL Targets
- ✓ TMDL Source Assessment/ Delineation
- ✓ TMDL Load Allocations
- ✓ Total Maximum Daily Loads
- ✓ TMDL Stakeholder Participation
- ✓ TMDL Effectiveness Monitoring
- ✓ GIS Services
- ✓ Water Quality Modeling
- ✓ Statistical Analysis
- ✓ Electronic Data/ Information Technical Assistance
- ✓ Watershed Coordination
- ✓ Information and Education
- ✓ Information Transfer and Total Maximum Daily Load Technical Editing

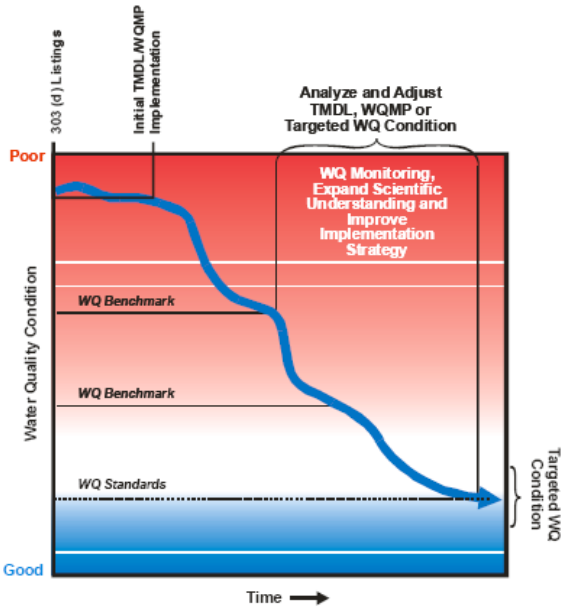
Tangible and Documented Benefits

- Development of a site-specific, seasonal total phosphorus water quality criteria
- Development of load allocations achievable by nonpoint contributors commensurate with available long-term funding;
- waste load allocations for point sources achievable within 5 years of TMDL implementation
- Development of a trading framework which allows more cost effective phosphorus reductions to be evaluate by point sources;
- Compliance with interstate (Idaho and Oregon) water quality standards; formation of a successful Public Advisory Team;
- A TMDL that meets state (Idaho and Oregon) and federal TMDL requirements.
- Helped influence outcome of TMDL process.

"The solutions provided through the adaptive management framework within the TMDL made the technical issue differences among the group fade into the background and enabled relatively quick resolution of a potentially very contentious TMDL"

Robin Finch, Water Quality Manager, City of Boise

Integrated Water Quality Management and TMDL Strategy



Adaptive Management - Schematic Diagram

Adaptive Management—Schematic Diagram (from Oregon DEQ, 2002)

City of Klamath Falls, Oregon

The Klamath Basin has been at the center of some of the most hotly contested water resources issues in the nation. The City of Klamath Falls, located on the Klamath River just downstream of the Upper Klamath Lake, plays an integral role in ongoing water quality and quantity discussions in the basin.

Brown and Caldwell worked with the City to develop a comprehensive strategy to address a broad array of water quality issues, including TMDLs for ammonia, nutrients, dissolved oxygen, and temperature in the lake and the river, Phase II storm water permitting requirements, and decisions about where to discharge recycled wastewater to meet both quantity and quality needs. To help provide a scientific basis for the strategy, Brown and Caldwell reviewed existing data, designed a targeted water quality monitoring program to collect new data, provided detailed technical review and input on the draft Upper Klamath Lake TMDL, and worked with regulatory agencies to consider alternative approaches for the City. Brown and Caldwell also facilitated a one-day "Regulatory

Futures" workshop which gathered more than 20 representatives from state, federal and local organizations to brainstorm possible future needs, approaches, and outcomes and helped to integrate conflicting needs of the many agencies working within the Klamath Basin.

Benefits to Client:

- ✓ Water Quality Monitoring Fixed Station and Probabilistic Design
- ✓ Water Quality Monitoring Lakes and Streams
- ✓ Water Quality Monitoring Reference Sites
- ✓ TMDL Targets
- ✓ TMDL Source Assessment/ Delineation
- ✓ TMDL Load Allocations
- ✓ Total Maximum Daily Loads
- ✓ TMDL Stakeholder Participation
- ✓ TMDL Effectiveness Monitoring
- ✓ GIS Services
- ✓ Water Quality Modeling
- ✓ Statistical Analysis
- ✓ Electronic Data/ Information Technical Assistance
- ✓ Watershed Coordination
- ✓ Information Transfer and Total Maximum Daily Load Technical Editing

Using data collected from the river, Brown and Caldwell was able to demonstrate to the Oregon Department of Environmental Quality that the City's wastewater treatment plants contribute a small fraction of the total ammonia load and helped to change the direction of the Klamath River ammonia TMDL. Brown and Caldwell also helped the City on the Upper Klamath Lake nutrient TMDL, providing analysis that led to an increase in the initial zero allocation for point source discharges in the draft TMDL. The final TMDL is being implemented through an adaptive management approach, which recognizes that it may take up to several decades before management practices become fully effective and achieve the final water quality objectives.

Tangible and Documented Benefits

The final integrated water quality management strategy was unanimously adopted by the Klamath Falls City Council and is now moving into the implementation phase, including pursuit of long-term funding for water quality improvements.

Water Quality Studies, Use Attainability Analysis and Site-Specific Ammonia Criteria Development

City of Lincoln, Nebraska

Salt Creek, which runs through the City of Lincoln, receives wastewater from the City's two wastewater treatment plants and supports a unique, saline tolerant biological community. In 1994, the Nebraska Department of Environmental Quality proposed ammonia limits that would have required complete nitrification for the City's wastewater. The City decided to invest in water quality studies to support a more site-specific approach.

Brown and Caldwell performed a comprehensive physical, chemical, and biological evaluation of Salt Creek to provide a scientific basis for the development of appropriate TMDL/NPDES permit limits for ammonia and whole effluent toxicity testing. Brown and Caldwell designed and helped to implement a detailed, multi-year water quality, biological community, and habitat monitoring program. The Brown and Caldwell team, which included Limno-Tech, performed detailed water quality modeling and evaluation of the data. Based on the data, Brown and Caldwell identified physical habitat limitations, including historic channelization and lack of flow, and high salinity as significant factors defining the achievable biological communities in the creek. To support site-specific criteria, our team performed laboratory and in situ toxicity testing to determine a local water effects ratio for ammonia in Salt Creek. Brown and Caldwell worked closely with City Public Works staff and legal counsel, as well as the State of Nebraska, EPA, local Natural Resources District and environmental organizations to consider alternative approaches to managing Salt Creek water quality. We also presented project results to a Water Environment Research Foundation peer review committee to obtain feedback and confirmation of the conclusions. Ultimately, the issues raised by the Salt Creek project led to a full-fledged WERF research project that Brown and Caldwell led, entitled "Distinguishing the Relative Influence of Habitat and Water Quality on Aquatic Biota." In addition to water quality assessments, Brown and Caldwell also evaluated alternative effluent management strategies and relative costs at the City's two WWTPs.

Benefits to Client:

- ✓ Water Quality Monitoring Fixed Station and Probabilistic Design
- ✓ Water Quality Monitoring Lakes and Streams
- ✓ Water Quality Monitoring Reference Sites
- ✓ TMDL Targets
- ✓ TMDL Source Assessment/ Delineation
- ✓ TMDL Load Allocations
- ✓ Total Maximum Daily Loads
- ✓ TMDL Stakeholder Participation
- ✓ TMDL Effectiveness Monitoring
- ✓ Water Quality Modeling
- ✓ Statistical Analysis
- ✓ Electronic Data/ Information Technical Assistance
- ✓ Watershed Coordination
- ✓ Information and Education
- ✓ Information Transfer and Total Maximum Daily Load Technical Editing

Tangible and Documented Benefits

Site-specific chronic ammonia criteria have been adopted by the Nebraska Environmental Quality Council and Nebraska Department of Environmental Quality and have been incorporated into NPDES permits for both of the City's WWTPs. The site-specific criteria vary seasonally, and are 20 percent or more above the default values. The criteria have also been applied as flow-based ammonia effluent limits, which are significantly higher than the limits previously presented by the NDEQ. WET testing requirements have also been reduced in frequency and allow for ammonia removal prior to testing. Salt Creek has been removed from the 303(d) list, under Category 4 - site-specific study and proposed improvements to meet new criteria. Through the studies, the City of Lincoln has gained a more accurate understanding of the conditions and dynamics of Salt Creek and how to protect its environment. The City also estimates capital cost savings of over $10 million as a direct result of the studies.

Clarks Creek Pollutant Reduction Plan and TMDL Support, Puyallup, WA

City of Puyallup, WA

The Clarks Creek basin is located about 10 miles east of Tacoma, WA. The Creek's upper reaches are in the City of Puyallup, while its lower are in Puyallup Indian trust lands. A major tributary flows though the Western Washington State Fairgrounds, which hosts numerous livestock events and draws more than a million human visitors annually. Clarks Creek is an important recreation and aesthetic resource, and it provides habitat for several species of salmon and migratory birds.

Clarks Creek and its key tributaries are on Washington's 303(d) list due to violations of water quality standards for fecal coliform, dissolved oxygen, and pH. Consequently, the Washington State Department of Ecology (Ecology) plans to establish TMDLs for fecal coliform, DO and pH in the Clarks Creek basin.

The City of Puyallup, in partnership with the Puyallup Tribe of Indians, retained Brown and Caldwell to lead the Clarks Creek Pollutant Reduction study. The study objectives are to identify and quantify human and natural

sources of fecal coliform, DO and pH problems in the basin, and develop a management plan to address key sources.

Brown and Caldwell developed a unique monitoring approach that used synoptic sampling and DNA ribotyping to identify the specific sources of fecal contamination. We used the Watershed Treatment Model to estimate fecal coliform and nutrient loads from existing land uses. We performed statistical evaluations of the data and provided the results to the State for use in TMDL development.

Nearly 700 e. coli isolates were analyzed during the 15-month monitoring program. The DNA ribotyping results showed that birds and rodents typically accounted for about two-thirds of the fecal contamination, while human sources (e.g., septic systems, leaking sanitary sewers) were typically 5-10 percent. Dogs and cats typically comprised 10-15% of the e. coli isolates. Livestock comprised less than 1% of the samples, despite the thousands of cows, horse, pigs, etc. present at the Fairgrounds during major events, and the presence of "hobby farms" in the basin.

Benefits to Client:

- ✓ Water Quality Monitoring Fixed Station and Probabilistic Design
- ✓ Water Quality Monitoring Lakes and Streams
- ✓ Water Quality Monitoring Reference Sites
- ✓ TMDL Targets
- ✓ TMDL Source Assessment/ Delineation
- ✓ TMDL Load Allocations
- ✓ Total Maximum Daily Loads
- ✓ TMDL Stakeholder Participation
- ✓ TMDL Effectiveness Monitoring
- ✓ Water Quality Modeling
- ✓ Statistical Analysis
- ✓ Electronic Data/ Information Technical Assistance
- ✓ Watershed Coordination
- ✓ Information and Education
- ✓ Information Transfer and Total Maximum Daily Load Technical Editing

We worked with the City, Tribe, Ecology, and stakeholder groups to identify potentially viable control measures. We used the Watershed Treatment Model to help evaluate the potential load reductions from some of the candidate control measures (e.g., pet owner education, .septic system repairs, control of resident waterfowl). We met with Ecology TMDL staff to ensure that the TMDL allocations reflect the actual sources of fecal contamination, and that the TMDL compliance timeframes are appropriate for key control measures (e.g., riparian revegetation to deter resident waterfowl). We are now finalizing the Pollutant Reduction Plan.

Tangible and Documented Benefits

- Helped ensure that the TMDL correctly accounts for sources that are not amenable to control.
- Identified control measures that are tailored to the specific sources responsible for the observed violations
- Helped avoid costly control measures that would not address key sources
- Helped ensure that TMDL compliance timeframes are realistic
- Established credibility with regulatory agencies.
- Developed strong support from City officials, other governments, and general public

View of Salt Lake City from Little Cottonwood Canyon

Salt Lake City Watershed Canyons Source Water Protection, Salt Lake City, Utah

Salt Lake City's watershed canyons are currently protected by some of the best legal and regulatory policies in the United States. However, as development and recreation pressures in the Watershed Canyons increase, the demands on these policies grow more intense. Brown and Caldwell assisted the City in an ongoing effort to develop a sound scientific basis for its source water protection strategies. This includes identifying and quantifying existing and potential contaminant sources and a procedure to monitor threats to water quality. Brown and Caldwell worked with the City to identify and prioritize water quality issues, indicator constituents, trends and threshold levels for response activities. Brown and Caldwell developed a water quality monitoring program and response plan as part of a water quality information system. This included developing a relational database to manage the data and data analysis protocols, in which water quality data is interpreted into information for management. The water quality information system created through the monitoring plan is integrally linked to the City's water quality management goals. The

management goals serve as the driving factor between monitoring information and management decisions regarding the protection of water quality in the Watershed Canyons.

Benefits to Client:

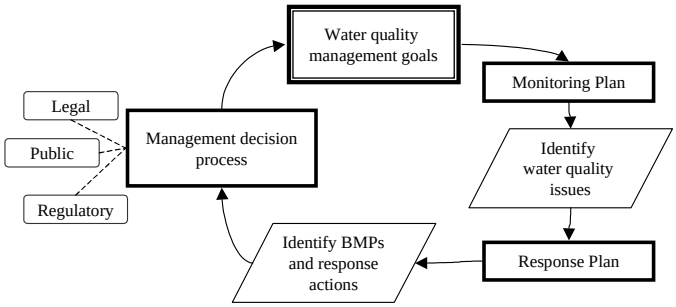
- ✓ Water Quality Monitoring Fixed Station and Probabilistic Design
- ✓ Water Quality Monitoring Lakes and Streams
- ✓ Water Quality Monitoring Reference Sites
- ✓ TMDL Source Assessment/ Delineation
- ✓ TMDL Stakeholder Participation
- ✓ TMDL Effectiveness Monitoring
- ✓ GIS Services
- ✓ Statistical Analysis
- ✓ Electronic Data/ Information Technical Assistance
- ✓ Watershed Coordination
- ✓ Information and Education
- ✓ Information Transfer and Total Maximum Daily Load Technical Editing
- ✓

As part of this project, Brown and Caldwell facilitated an Expert Panel of local and national water quality experts to provide review and input to the process. Brown and Caldwell also provided technical information for a public involvement component to ensure smooth implementation of protection strategies.

Tangible and Documented Benefits

Provided Salt Lake City with sound science to ensure long-term protection of source water in the Watershed Canyons.

- Scientifically defensible source water protection strategies.
- Consideration of current and future threats to the watershed.
- Effective stakeholder participation for smooth strategy implementation.



Planning and Decision Making Process

Method of Providing Services and Quality Assurance (RFP Section 4.1.3)

Brown and Caldwell clients know they can count on us to act as an extension of their staff to achieve their short- and long-term objectives. To act as an extension of a client's staff requires a genuine interest in promoting their success and the ability to integrate our staff into the structures they have in place, be it management structures, process standards, or weekly schedules. Equating our own success with the success of our client arises naturally in our project teams as they work with and build relationships with individuals on the client's project team.

Project Delivery

Brown and Caldwell requires a project management plan (PMP) as part of the quality assurance/quality control (QA/QC) Guidelines for every project. The basic purpose of the PMP is for the project manager to think through the project specifics, develop an execution plan, and communicate that plan to project team members. The Brown and Caldwell PMP emphasizes original thinking, structured to meet our clients' specific project needs.

Brown and Caldwell has established tools designed to help our project managers think through key project elements and systematically and consistently deliver successful projects to our Clients. We define project success as delivering projects:

- On time
- On budget
- At a quality level expected by the Client, and meeting industry standards
- In a manner that satisfies the Client's Critical Success Factors
- By utilizing an engaged and effective project team

This is accomplished through a client-focused project delivery system, which is designed to determine client success criteria and then ensure that Brown and Caldwell efficiently delivers the highest-quality consulting services. Table 4 provides an overview of the project delivery system.

Table 4. Requirements Applicable to All Brown and Caldwell Projects

Requirement	Summary Description	Timing
❑ Use of Company Standard Contracts or approved alternatives	Obtain legal Department review/approval for Client required contracts or use Company Standard Contract	During Procurement and Negotiations.
❑ Current Project Plan, including: – Client's Critical Success Factors – Work Breakdown Structure – Scope – Budget – Schedule – Resources (staff & subcontractors) – QA/QC Plan – Change Management Process – Documentation	A document, refreshed when significant changes occur, that reflects details of what the work is, how it will be done, and by whom. Plan complexity will be commensurate with the project.	Draft during Negotiations; complete before project starts; and refresh when significant changes occur to scope, budget, schedule, or client-specific drivers.
❑ Build Quality into the project (QA), including: – Right staff with right skill set – Use of proven technical tools – Planned reviews for checking	Plan for appropriate tools, resources, and input to assure quality. QA starts at the personal level, with an individual commitment to quality. Engage staff not on the project team, to provide objective input.	QA starts during Procurement.
❑ Project Kickoff ⇒ Achieve Project Team and Client Agreement	Kickoff meetings or discussions, depending on complexity, with the project team and the client, to discuss the Project Plan and obtain buy in.	Before significant project activity starts. Typically within the first 5 % of the project budget.
❑ QC Checks on all technical results, calculations, and deliverables	Checking of results, calculations, and deliverables. Can include checking by personnel independent of the project.	Prior to concluding technical results, using calculations, or distributing deliverables to the team or to the client
❑ Proactively Manage Change	Deal with change as it happens, modifying the Project Plan, if necessary, and communicating with the team and client about scope and compensation changes.	As change occurs.
❑ Create an Engaged and Effective Project Team	A team that knows what has to be done, agrees with their responsibility, and works well together under the direction of the project manager.	Throughout the project. Team buy in starts at Procurement, and continues through Closeout & Follow-up.
❑ Closeout Debrief (with team) & Follow-up (with client)	Bring the project to a formal close, confirming satisfaction of client's critical success factors, and communicating actual results to team members.	After final deliverables are submitted and approved.

Monitor Project Progress

At Brown and Caldwell, we utilize a weekly progress-monitoring system to track expenditures and product completion. Each project manager receives information on charges against the project for the prior week. This also provides information on total expended budget. Routinely, we include with our invoices a project status report, indicating the status of the budget and schedule. We will make this part of our reporting routine to the State.

Problem Solving

Each Project Management Plan addresses the involvement of senior technical staff. Depending on the type of project, project managers are required to seek review from senior staff at key points in the project. This ensures that all of the right steps are taken in starting and finishing a project on time and within budget.

Customer Service

Brown and Caldwell prides itself in its attention to client satisfaction. It is the duty of each employee to ensure that this is achieved. Additionally, senior vice presidents at Brown and Caldwell routinely conduct client

wellness checks to ensure that expectations of each client are being exceeded. This will ordinarily occur once per year.

Interaction With The Public

Brown and Caldwell staff strive to perform their jobs in the most professional manner possible. This is most important when dealing with the public. Project managers discuss with field and technical staff how they should interact with the general public. Our aim is to ensure that members of the public feel engaged in the project and their concerns are registered with our staff.

Fiscal Management

Project managers are required, on a two month period or less, to provide an updated cost to complete to the senior company staff for review. This process ensures that correct steps are taken to bring the project in under budget. These steps are especially crucial during early phases of the project.

Project Team Roles and Project Execution

The project manager plans, organizes, monitors, and controls projects as the company's responsible person to ensure successful project delivery. The project manager will review all technical material and correspondence between the Brown and Caldwell project team and State project staff. This ensures the consistency and quality of information, legibility of the documents, and completeness of information. A technical lead will be assigned for each specific project. This person is responsible for using the appropriate staff and tools to complete the project and satisfy the client's critical success factors.

Example Project Delivery

An example Project Management Plan for the Salt Lake City Watershed Canyons project is included in Attachment A.

Staff Qualifications (RFP Section 4.1.4)

Brown and Caldwell's Water Resources Practice is focused on delivering holistic, multidisciplinary answers to today's water resources challenges. We see all water as a resource, whether it's in the ground, pristine mountain streams, urban runoff, or wastewater treatment plant effluent. To make the best use of water resources in a sustainable manner and to protect associated ecosystems, we work with our clients to develop innovative, cost-effective, and integrated strategies.

The Brown and Caldwell team is prepared to work with the State, in all aspects of the proposed Service Categories, to satisfy water quality regulations while also responding to community desires to achieve tangible benefits. Our proposed key staff has assisted other agencies throughout the nation develop water quality monitoring programs, water quality models, TMDLs, data management systems, and public education and outreach which accomplish multiple objectives. Our team capabilities include the development of Adaptive Implementation Plans as well as a solid understanding of the design and construction of wastewater and storm water facilities to achieve compliance with final TMDLs. Our diverse team of experts will also bring a national perspective of working with federal state, and local governments; watershed groups; and private industry to address water quality issues.

Brown and Caldwell provides comprehensive water resource management services to help its clients take strong leadership roles in the protection of water quality, while identifying solutions that can accomplish multiple objectives including watershed protection and restoration, water supply, habitat enhancement, and recreation. Our company's broad multidisciplinary resources will provide the State with leadership for each of the Service Categories included in this proposal.

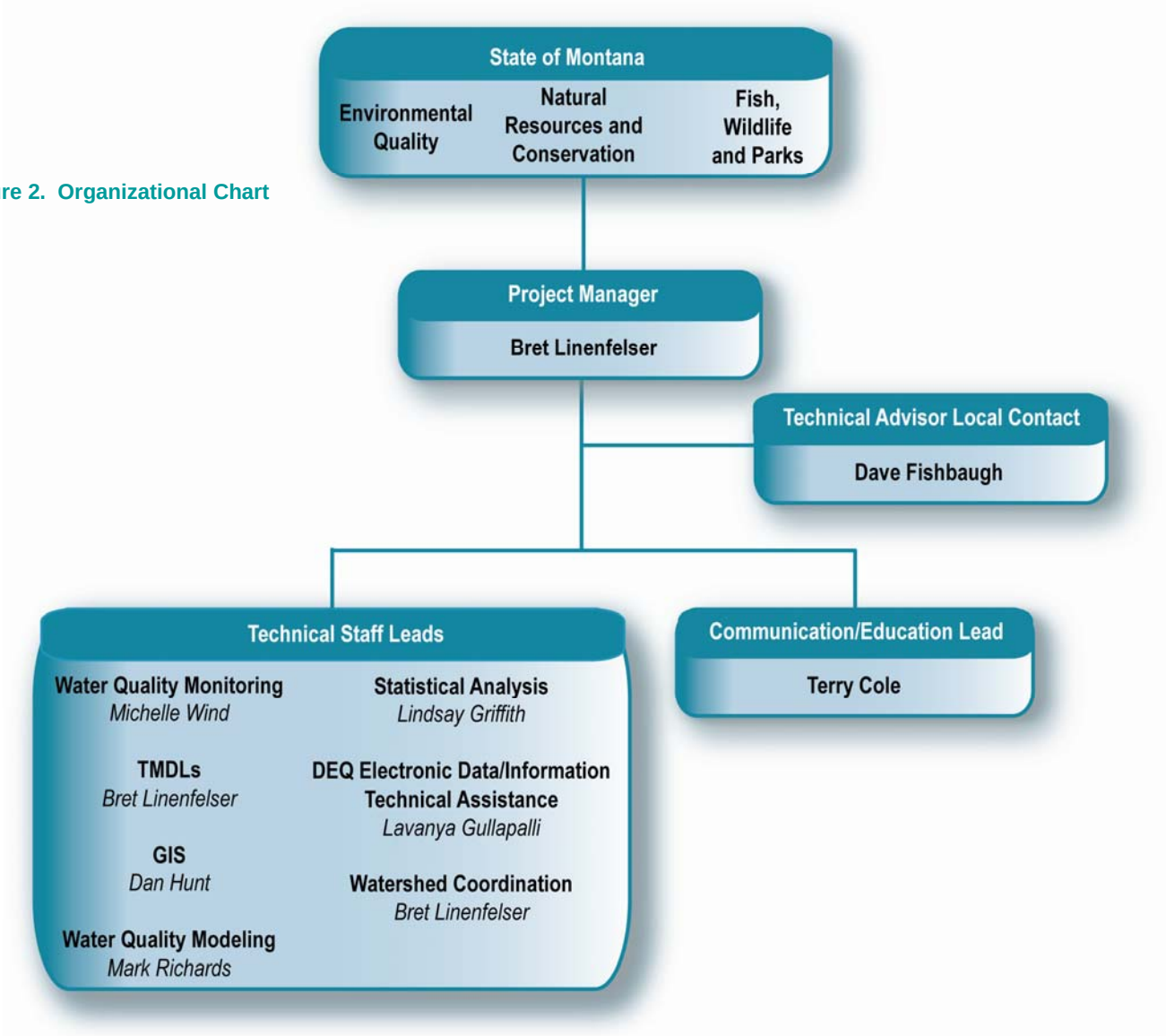
Personnel

We have identified a core team from our company's broad multidisciplinary resources to provide the State with leadership for each of the technical and outreach and education issues that may need to be addressed in each of the proposed Service Categories (Figure 2).

Our **Project Manager**, **Bret Linenfelser**, is the Denver Water Resource Practice Leader, and also leads

Brown and Caldwell's water resource efforts in the region. He has been with Brown and Caldwell for 16 years and has worked extensively in the areas of surface water hydrology, water quality evaluations, NPDES permitting, watershed management, regulatory compliance and TMDL development. Mr. Linenfelser has worked in the Mid-Western and Western states on surface water quality, permitting, TMDL and watershed protection projects and is recognized for his knowledge of state and federal regulations pertaining to Clean Water Act regulation including TMDL assessments. Mr. Linenfelser has been involved in various projects focusing on point and nonpoint assessments of nutrient impacts and water quality modeling and assessment of nutrient loadings on various lake and river systems. He brings strong experience and a thorough understanding of regulatory policy as well as flexibility; managing large, multidisciplinary teams of scientists, engineers, economists and planners; and success in building trust with the local stakeholder community.

Figure 2. Organizational Chart



We will exceed the needs of the State through local (Billings, Montana) staff and extensive resources available throughout the northwest region and the country, and in particular the Golden (Denver), Colorado, office. **Mr. David Fishbaugh**, is the Billings, Montana office manager and will work in conjunction with Mr. Linenfelser in a role of project oversight.. Mr. Fishbaugh, is a geologist/hydrogeologist with over 25 years of experience and has worked with the Crow Indian Reservation, Big Horn Carpet Mill Brownfields Project. He currently is working on two large Superfund projects in Montana; a CECRA Superfund site in Cut Bank, Montana, and the Lockwood Solvent Site in Billings, Montana. In addition, Mr. Fishbaugh was appointed to the Montana Board of Environmental Review (BER) by the Governor of Montana and currently serves as the Hydrologist on the

BER. Mr. Fishbaugh is also a part time Faculty member at Montana State University – Billings were he teaches a 400-level Environmental Hydrology class in the Environmental Studies program.

Our core project team, includes technical leads for each proposed Environmental Service Category. Table 4 summarizes the qualifications of the core project team members and resumes are included in Attachment B for more detail. Table 5 identifies projects in which core team members provided an active role. In addition to the core project team, Brown and Caldwell has over 100 additional water resources staff available to fill a specific technical role or to supplement personnel to complete a time sensitive project. A summary of our water resources staff is included in Attachment C.

Brown and Caldwell's billing rates are included in Section 6.

Additional Capabilities and Qualifications

Monitoring Resources

Brown and Caldwell maintains the following non-staff monitoring resources available for this project:

- Pygmy Velocity Meter
- Flow Probe velocity meter (approved by USGS)
- DH-48 Sediment Sampler (for the collection of integrated water samples as approved by the USGS
- Portable V-Notch Weirs
- Multiple parameter field meters – pH, temperature, specific conductance, REDOX, dissolved oxygen
- High resolution conductivity meter (for mixing zone assessments)
- Fluorometer and associated data loggers (for dye studies and mixing zone assessments.
- Various field accessories to support ground water and surface water quality monitoring and field activities

GIS and Data Management Capabilities

Brown and Caldwell features full-time GIS specialists on staff with expertise in ArcGIS 8.3 and 9.0, ArcInfo Workstation, ArcView 3.2, and Arc Macro Language programming, as well as project experience in compiling and maintaining GIS databases, geoprocessing data and spatial analyses.

Our project experience includes data compilation and management of large datasets, from multiple sources and formats, including STORET, to provide access to data for evaluation. We bring a strong working knowledge of data and metadata requirements, system integration, map interfaces, and sustainable web-based system design to assist in coordination with State and EPA tools (STORET, Web SIM).

Computer Modeling Compatibilities

Brown and Caldwell uses various watershed, water quality and hydrology and hydraulic models in assessments of impacts to water quality for point and nonpoint sources and to assess the fate and transport of various constituents. Brown and Caldwell has a broad range of staff which are proficient in the following models.

- EPA SWMM
- XP SWMM
- Mike SWMM
- DHI Mouse
- Sewer CAT
- Hydro Graphics
- CEDRA AVsand
- Infiltration and Inflow Models

- HSPF
- BASINS
- HEC 1 – HMS
- HEC 2 – HEC- RAS
- COREMIX
- QUAL2E
- CE-QUAL-W2
- WASP
- Colorado Ammonia Model
- STREAMDO

Brown and Caldwell has also developed site-specific models for various water quality assessments using spreadsheet applications.

Grant Funded Project Experience Eases Grant Administration

It is our understanding that many of the projects for the Environmental Services contract may be funded with grants. Brown and Caldwell core team members have managed, and are currently managing, multiple projects funded by grants (e.g., Colorado Nonpoint Source Program, Regional Geographic Initiatives, EPA Consolidated Funding Program). As a result, we are familiar with documentation and reporting requirements. Our understanding of grant requirements enables us to develop work products and status reports that grant managers can easily incorporate into reporting and reimbursement submittal requirements. Brown and Caldwell has also assisted clients in successfully procuring state and federal grants. Members of our core team have and continue to provide grant administration services, including tracking grant milestones, submitting status reports and final reports, and tracking grant spending and preparing reimbursement request forms.